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Feeling Anxious Can Affect Language Performance in Chronic Aphasia: A Case Report

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Introduction

Mr. D. has very mild aphasia and minimal word-finding problems. However, he reports feeling insecure and anxious about his language performance. This study was designed to probe the source of his complaint, examining whether his physiologic stress responses and self-reports of anxiety are linked to his language performance. We based our design on Cahana-Amitay et al.'s (2011) framework, which proposes that language use is a stressor in aphasia which can lead to "linguistic anxiety", where psychological/physiologic aspects of anxiety exacerbate language impairment. We examined whether changes in physiologic reactivity and self-reported anxiety were related to performance on verbal vs. nonverbal tasks under two conditions that vary in the level of anxiety they induce.

We hypothesized that our participant will show: (1) greater physiologic and self-reported anxiety following language rather than cognitive tasks across both sessions, (2) higher (physiologic and self-reported) anxiety in the high vs. low anxiety condition, and (3) worse language performance (reduced accuracy) in the high vs. low anxiety condition.

Method

Participant: 67 years old, putamenal lesion, Boston Diagnostic Aphasia Examination (BDAE) aphasia severity rating of 4.5, 18 months post onset.

Measures:
Anxiety: (1) physiologic: skin conductance, heart rate; (2) self-reports: subjective units of distress (1-10 scale).
Verbal: Subsets of the BDAE; verbal fluency; narrative describing occupation preceding stroke.
Nonverbal: Subsets of the Cognitive Linguistic Quick Test.

Procedure: Study consisted of two visits, each divided into two blocks: verbal and nonverbal. Physiologic stress responses and anxiety self-reports were obtained before, during, and after testing. In Visit 2, anxiety was induced by instructing participant to prepare a public speech, following the Trier Social Stress Test anxiety induction design (Kirschbaum, Pirke, & Hellhammer, 1993).

Scoring/Analyses: Values of physiologic changes were obtained by subtracting baseline readings from those recorded during the anxiety-induction condition; accuracy on standardized tests was scored; discourse samples were coded for disfluency and discourse productivity measures.

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Findings

Participant had greater physiologic variability on language tasks compared to cognitive tasks, following induction of anxiety. The participant performed at ceiling on most standardized tests under both conditions, but showed greater physiologic stress reactivity in response to language tasks in the high anxiety-induction condition (measured by greater difference in average heart rate between low- and high-anxiety conditions). Worse language performance was apparent only on the narrative task in the high anxiety condition, where output was dramatically reduced (less words per minute) and far less fluent (more and longer pauses).

Discussion & Conclusion

Our results highlight two important methodological observations concerning assessment anxiety in aphasia: (1) the importance of using both physiological and self-report as measures, and (2) the need to consider language performance on tasks tapping different linguistic abilities to be able to identify anxiety-related patterns of impairment. Such measurements enable us to better characterize residual effects of aphasia in people who appear to be fully recovered. Such people can experience language use as a stressor, and the physiological and psychological manifestations of this experience can negatively impact their language when asked to engage in a more open-ended discourse task.